IN THE CLAIMS:

1. (Currently Amended) A cathode structure comprising:

a heater including a columnar electric insulating material body and a heating wire that is partially buried and in contact with the electric insulating material body, wherein the heating wire is coiled, within the insulating material body, around a first axis; and

a cathode unit is disposed at a first end surface of the electric insulating material body including a metal cup and a pellet member supported in the metal cup, the pellet member containing an electron-emitting material, wherein

the heating wire leads out from a second end surface of the electric insulating material body and the first axis of the coiled heating wire is parallel to the first end surface of the electric insulating material to provide a compact configuration for the cathode structure with an enlarged heat transmitting capacity.

2. (Original) A cathode structure according to Claim 1, wherein

the electric insulating material body includes a wall disposed on the second end surface so as to surround a position from which the heating wire leads out.

3. (Previously Presented) A cathode structure according to Claim 2, wherein the wall is disposed around a perimeter of the second end surface,

the second end surface surrounded by the wall rises in a dome shape, and

the heating wire leads out from a position between the wall and a center of the second end surface.

4. (Previously Presented) A cathode structure according to Claim 1, wherein the electric insulating material body is in a circular columnar shape, and includes a part that has a greater diameter than that of the second end surface.

5. (Currently Amended) A cathode structure comprising:

a heater including a columnar electric insulating material body and a heating wire that is partially buried and in contact with the electric insulating material body and leads out from a side surface thereof, wherein the heating wire is coiled, within the insulating material body, around a first axis traverse to the side surface; and

a cathode unit disposed at one of an end surface of the electric insulating material body, and emitting electrons from a surface of the cathode unit when heated by the heater, the cathode unit includes a metal cup and a pellet member containing an electron-emitting material supported in the metal cup, wherein

the electric insulating material body includes a protrusion disposed on the side surface between a position from which the heating wire leads out and the surface of the cathode unit from which electrons are emitted.

6. (Original) An electron gun including a cathode structure according to Claim 1.

7. (Original) A cathode ray tube including an electron gun according to Claim 6.

8. (Original) An electron gun including a cathode structure according to Claim 5.

9. (Original) A cathode ray tube including an electron gun according to Claim 8.

10. (Previously Presented) A cathode structure according to Claim 1 wherein the electron-emitting material contains barium oxide.

11. (Previously Presented) A cathode structure according to Claim 1 wherein the electric insulating material body is made of ceramic.

12. (Previously Presented) A cathode structure according to Claim 1 further comprising a supporting metal wire attached to the cathode structure between the metal cup and the heater.

13. (Previously Presented) A cathode structure according to Claim 12 wherein a plurality of supporting metal wires are attached to the cathode structure between the metal cup and the heater and extend outward from the side of the cathode structure.

14. (Previously Presented) A cathode structure according to Claim 13 wherein the heater wire is coiled into an S shape when viewed perpendicular to an axis through the cathode structure.

15. (Previously Presented) A cathode structure according to Claim 1 wherein the columnar electric insulating material body has a trapezoidal cross-sectional shape.

16. (Previously Presented) A cathode structure according to Claim 1 wherein the columnar electric insulating material body has a cylinder shape with a lower extending annular wall surrounding the exit of the heating wire from the second end surface.

17. (Previously Presented) A cathode structure according to Claim 5 wherein the electron-emitting material contains barium oxide.

18. (Previously Presented) A cathode structure according to Claim 5 wherein the electric insulating material body is made of ceramic.

19. (Previously Presented) A cathode structure according to Claim 5 wherein further comprising a supporting metal wire attached to the cathode structure between the metal cup and the heater.

20. (Currently Amended) A cathode structure for an electron gun comprising:

a metal cylindrical open cup with a columnar pellet mounted in the metal cup, the columnar pellet contained within an inner diameter of the metal cup and extending above the metal cup to emit electrons;

a columnar electric insulating material body including a heating wire, in contact with insulating material of the insulating material body, having electrode leads extending from one end of the insulating material body, wherein the heating wire is coiled, within the insulating material body, around a first axis parallel to the electron emitting surface of the columnar pellet; and

a plurality of support wires attached to the cathode structure between a bottom of the metal cup and a surface of another end of the columnar electric insulating material body, to extend laterally outward from the bottom of the metal cup, wherein heat from the heating wire is transmitted to the metal cup to enable the columnar pellet to emit electrons, the columnar electric

insulating material body having a lower extending annular wall surrounding the electrode leads to suppress the electron emitting material from attaching to the electrode leads.

21. (Previously Presented) A cathode structure according to Claim 20 wherein barium oxide is the electron emitting material in the columnar pellet, and a surface of the columnar pellet above the metal cup is covered with an osmium-ruthenium thin film.

22. (Currently Amended) A cathode structure comprising:

a heater including a columnar electric insulating material body and a heating wire that is partially buried and in contact with the electric insulating material body; and

a cathode unit disposed at a first end surface of the electric insulating material body including a metal cup and a pellet member supported in the metal cup, the pellet member containing an electron-emitting material, wherein

the heating wire leads out from a second end surface of the electric insulating material body, wherein the electric insulating body is in a circular columnar shape with a longitudinal axis, and includes a part that has a greater diameter than that of the second end surface and the heating wire is coiled, within the insulating material body, around a first axis positioned traverse to the longitudinal axis to enable a compact configuration for the cathode structure.

23. (Previously Presented) A cathode structure comprising:

a heater including a columnar electric insulating material body and a heating wire that is partially buried and in contact with the electric insulating material body; and

a cathode unit disposed at a first end surface of the electric insulating material body including a metal cup and a pellet member supported in the metal cup, the pellet member containing an electron-emitting material, wherein

the heating wire leads out from a second end surface of the electric insulating material body, the electric insulating material body includes a wall disposed on the second end surface so as to surround a position from which the heating wire leads out, wherein the wall is disposed around a perimeter of the second end surface,

the second end surface surrounded by the wall rises in a dome shape, and

the heating wire leads out from a position between the wall and a center of the second end surface.

24. (Previously Presented) A cathode structure comprising:

a heater including a columnar electric insulating material body and a heating wire that is embedded in the electric insulating material body; and

a cathode unit disposed at a first end surface of the electric insulating material body including a metal cup and a pellet member supported in the metal cup, the pellet member containing an electron-emitting material, wherein

the heating wire leads out from a second end surface of the electric insulating material body, and the heating wire is coiled into an S shape when viewed perpendicular to an axis through the cathode structure.